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 Northern CA Process Safety Management  
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Ms. Carla M. Fritz, Associate Safety Engineer  
 Dept. of Industrial Relations  
 Division of Occupational Safety & Health  
 Northern CA Process Safety Management  
 1450 Enea Circle, Suite 550  
 Concord, CA 94520-7996

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June 8<sup>th</sup>, 2010

Ms. Carla M. Fritz  
Associate Safety Engineer  
Department of Industrial Relations  
Division of Occupational Safety and Health  
Northern California Process Safety Management  
1450 Enea Circle, Suite 550  
Concord, CA 94520-7996

**Cal OSHA Document Request – Inspection #314323429– Chevron Richmond Refinery**

Dear Ms. Fritz:

This response, with the attached documents, satisfies the items of the Cal OSHA Document Request dated May 17<sup>th</sup>, 2010. The following attachments are numbered to reflect your request.

1. Process overview/description for Naphtha Hydrotreater

Attachment 1

2. P&ID for NHT feed-effluent heat exchangers (hereafter 'hex')

Attachment 2 with pertinent area highlighted.

3. Most recent PHA for the NHT, including recommendations & their disposition (due 07/03/10 – or as soon as possible)

As we discussed, the PHA will be submitted upon completion of the 2010 NHT PHA.

4. Most recent PHA for the Desalter(s), including recommendations & their disposition

Attachment 4 – Includes the complete listing of the #4 Crude Unit Nodes, and any PHA worksheets that are related to the Desalter (Nodes 16, 17, 18, & 19). The final page of Attachment 4 is the Chevron Integrated Risk Prioritization Matrix used for PHAs. The

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Northern California Process Safety Management  
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PHA determined that all appropriate Safeguards were present. Therefore, there were no recommendations for the desalter.

5. Written operating procedures specific to NHT feed-effluent hex

Attachment 5 –

- a. Excerpts from the NHT Electronic Operating Manual (hereafter EOM) Process Information section relating to the Feed-Effluent Exchangers;
- b. Excerpts from the NHT EOM Equipment Description section relating to the Feed-Effluent Exchangers;
- c. Excerpts from the NHT EOM Normal Operations section relating to the Feed-Effluent Exchangers;
- d. NHT Plant General Start-Up Preparation Checklist Procedure;
- e. NHT Plant "Hydrogen Pressure Check" Normal Procedure;
- f. NHT Plant "Establish Hydrogen Circulation" Normal Procedure;
- g. NHT Plant "Start Feed to Unit and Adjust for On-Test Product" Normal Procedure;
- h. NHT Plant "Reduce and Pull Feed, Hot Strip Reactor Section" Normal Procedure, and
- i. Excerpt from the NHT EOM Consequence of Deviation section relating to the Feed-Effluent Exchangers.

**NOTE:** Other procedures specific to the NHT Feed-Effluent hex are included under Attachment 8.

6. Written inspection procedures specific to NHT feed-effluent hex

Attachment 6 –

- a. Fixed Equipment Inspection Manual – Pressure Vessel Section;
- b. Chevron Corporation Manual Ultrasonic Thickness Examination Procedure;
- c. Chevron Corporation Ultrasonic Examination of Vessel, Column, and Exchanger Welds in Accordance with ASME Section V Procedure;
- d. Chevron Corporation Ultrasonic Examination for the Detection of High Temperature Hydrogen Attack in Base Metal Procedure, and
- e. Chevron Corporation Visual Examination Procedure.

7. Written maintenance procedures specific to NHT feed-effluent hex

Attachment 7 – Maintenance Instruction #608 – Field Testing and Repairing of Heat Exchangers.

8. Inspection, testing & monitoring procedures specific to NHT corrosion phenomena: including operational aspects affecting corrosion and fouling, chloride control, chemical

injection, wash water injection, ammonium chloride & ammonium bisulfide corrosion/fouling control.

Attachment 8 –

- a. Excerpts from the NHT EOM Normal Operations section specifically relating to NHT corrosion phenomena;
- b. NHT Plant Equipment Reliability Flow Diagram;
- c. NHT Critical Process Variables for the Reactor and Feed/Effluent Exchangers;
- d. NHT Plant “E410 Water Wash” Normal Procedure;
- e. NHT Plant “Initial Commissioning, Ammonia Injection System” Normal Procedure;
- f. NHT Plant 4, 5, & 9 Plant Operator Job Aid: “Guidelines for pH Control, V-430 Wash Water”;
- g. NHT Plant “P-412 Injection Pump Startup” Normal Procedure
- h. NHT Plant “Contingency Procedures, Water Wash Injection System” Normal Procedure;
- i. NHT Plant “Commissioning E-412 Multi-Point Water Wash Injection System” Normal Procedure, and
- j. Delta Tech Service Inc Chemical Cleaning Work Procedure for Chevron Products Company NHT: H2S Generating Job Acid Wash Chemically Acid Wash (E-410 A-F T/S & S/S).

9. Materials selection criteria for NHT feed-effluent hex + associated piping

Attachment 9 – Summary statement explaining differences between materials guidance recommendations and metallurgy for existing NHT equipment.

NOTE: A Plant Equipment Reliability Flow Diagram has been submitted in response to Item #8,

10. NHT feed-effluent hex inspection & repair data: including in-service & turnaround inspection recommendations & their disposition, operational upsets, corrosion & fouling control methodology specific to the hex (last 5 yrs)

Attachment 10 – See Item #8 for documentation regarding corrosion and fouling methodology specific to the NHT feed-effluent exchangers.

- a. Inspections History Brief for E-410 A-F Feed Effluent Exchangers for the last 5 years;
- b. Equipment Reliability Plan for E-410 A-F Feed Effluent Exchangers for the last 5 years;
- c. Corrosion RPT Reader Sheet for E-410 A-F Feed Effluent Exchangers for the last 5 years;

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- d. Shell and Tube Exchanger Worklist for E-410 A-F Feed Effluent Exchangers for the last 5 years;
- e. Materials Engineering Synopsis of Historical Corrosion and Materials Notes for the Feed-Effluent Exchangers, and
- f. 1Q2007 Process and Design Engineering Shutdown Reports for E-410 A-F.

11. NHT feed-effluent hex incidents upsets, near misses + investigative reports (last 5 yrs)

No specific near misses or investigative reports existed for the NHT feed-effluent heat exchangers (E-410 A-F).

12. MOC specific to the NHT feed-effluent hex (last 5 yrs)

Attachment 12 –

- a. Management of Change #21296 – E-410 Water Wash Procedure Update, and
- b. Management of Change #16072 – E-410A&B Channel Section Replacement.

13. NHT feed-effluent hex relief design basis

Attachment 13 –

- a. NHT Feed-Effluent Exchanger Equipment Data for E-410 A-F;
- b. NHT Feed-Effluent Exchanger PRD Design Data Report, and
- c. NHT P&ID which references Feed-Effluent Exchanger PRD.

14. P&ID for the desalters

Attachment 14 – #4 Crude Unit Desalter P&ID with pertinent area highlighted.

15. Item Removed in Amended Request (06/03/10).

16. Item Removed in Amended Request (06/03/10).

17. Item Removed in Amended Request (06/03/10).

18. Chloride monitoring data for the desalters (last 3 yrs)

Attachment 18 – Chloride Monitoring Data for the Desalter (last 3 years).

19. Procedures for selection, installation, material and design controls of equipment gaskets (feed-effluent hex)

Attachment 19 –

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- a. Senior Bolting and Sealing Engineer Synopsis of gasket selection guidelines, and
- b. Gasket Selection Data for Feed-Effluent Exchangers (E-410 A-F).

**20. Testing & Acceptance Protocols for crude inventory**

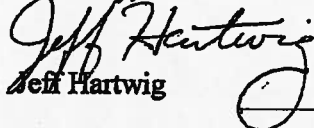
**Attachment 20 –**

- a. New Crude MOC Metallurgy Approval Process, and
- b. Process Engineering Synopsis of Crude Specification Guidelines (January 6<sup>th</sup>, 2009)

The Richmond Refinery considers all or part of the attached information to be Confidential Business Information (CBI) under both California and Federal law. As a consequence, the Richmond Refinery requests that Cal OSHA maintain the attached information indefinitely as CBI and requests immediate notification if Cal-OSHA disagrees with this request.

For questions, please contact Mr. Thomas DiPalma at (510) 242-2233.

Sincerely,

  
Jeff Hartwig

1.

#### **#5NHT Process Overview**

5NHT pumps whole naphtha from the crude unit to a higher pressure. Then, a mixture of this naphtha and hydrogen are sent through a series of feed/reactor effluent exchangers and a furnace to vaporize the process. Next, the naphtha and hydrogen are passed through a fixed catalyst bed where sulfur compounds are hydrogenated to form H<sub>2</sub>S. The reactor effluent is cooled through the feed/reactor effluent heat exchangers and fan air coolers. The process then goes to a separator vessel that separates the excess hydrogen and the desulfurized naphtha.

**Prepared by: Ryan McQuiston, Process Engineer**